REMARKS

Claims 1-11 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent No. 5,073,010 to Johnson et al. (hereinafter, "Johnson") in view of U.S. Patent No. 6,329,971 to McKnight. The method of claim 1 includes biasing a first plate of a spatial light modulator with alternating signals of a first polarity during a positive cycle of liquid crystal modulation and a second polarity during a negative cycle of liquid crystal modulation and biasing a second plate of the spatial light modulator with only the second polarity during both the positive and negative cycles of liquid crystal modulation.

Use of an opposite polarity during a particular color cycle with respect to the polarity used to bias the pixel electrode is not taught by the McKnight reference. For example, during a positive color cycle a positive voltage is applied to the cover class electrode and negative plurality voltage is applied during negative color cycle which is opposite to what is covered by claim 1. In other words, the same polarity during a negative cycle of the liquid crystal modulation is not used to bias the second plate during both the positive and negative cycles of the liquid crystal modulation in the McKnight reference. For example, in Figure 13, positive voltage is used during red positive cycle for biasing the cover glass electrode and a negative voltage is used during negative red cycle but the pixel electrode is biased at positive voltage as shown in Figure 11. Therefore, the same polarity, as used for the negative color cycle, is not used to bias the pixel electrode, as is the case in claim 1.

By using a negative voltage to bias the top plate 16, for example, during the positive frame, the entire dynamic voltage range may be utilized while enabling lower overall supply voltages to be utilized for modulation. For example, for a liquid crystal material having a modulation voltage of 3.3 volts, the dynamic range Vb of 1.8 volts may be realized. In the positive frame, the top plate 16 may be biased to -1.5 volts (i.e., Va equal to 1.5 volts). In the negative frame, the top plate 16 may be biased to 3.3 volts (i.e., Vb equal to 3.3 volts). If the spatial light modulator's supply voltage is a voltage equal to or higher than b volts, full modulation may be achieved by biasing the top plate 16 to –Va volts in the positive frame. In the negative frame, the top plate 16 voltage may be Vb. The spatial light modulator voltage still swings between 0 and b volts.

However, the display system taught by the McKnight reference can have a negative frame voltage as high as voltage Va plus voltage Vb because during the positive color cycle (sub

frame) a positive voltage is applied to the cover glass electrode and during the negative color cycle (sub frame) a negative voltage is applied to the cover glass electrode and during both negative and positive color cycles (sub frames) a positive voltage is applied to the pixel electrode. Therefore, to bias the liquid crystal material in the McKnight reference, relatively higher supply voltage will be required but the supply voltage of modern silicon chips is moving downwardly from 2.5 volts towards 1.3 volts and potentially lower thereafter. Thus, because of this biasing scheme, the McKnight reference may not be suitable for integrated circuit chips, which may not have the sufficient voltage levels to modulate typical liquid crystal materials. As a result, the McKnight display system could not be integrated into silicon chips.

Based on the same rationale as applied with regard to claim 1, it is respectfully submitted that the rejection of independent claim 7 is traversed. Accordingly, allowance of claims 1 and 7 and claims depending therefrom is respectfully requested. The Examiner is respectfully requested to reconsider all the pending claims.

In view of these amendments and remarks, the application is now in condition for allowance and the Examiner's prompt action in accordance therewith is respectfully requested.

Respectfully submitted,

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